

## ABSTRACT OF THE DISCLOSURE

Forces and moments are detected in a distinguished manner by a simple structure. An outer box-like structure formed of a metal is set on top of an insulating substrate and an insulating inner box-like structure is contained in the interior. Five electrodes E1 to E5 are positioned on a top plate of the inner box-like structure. Four electrodes E6 to E9 are positioned on the four side surfaces of the inner box-like structure. Capacitance elements C1 to C5 are arranged by electrodes E1 to E5 and a top plate of the outer box-like structure and capacitance elements C6 to C9 are arranged by electrodes E6 to E9 and side plates of the outer box-like structure. A force  $F_x$  in the X-axis direction is detected by means of the capacitance difference between C6 and C7, a force  $F_y$  in the Y-axis direction is detected by means of the capacitance difference between C8 and C9, a force  $F_z$  in the Z-axis direction is detected by means of the capacitance of C5, a moment  $M_y$  about the Y-axis is detected by means of the capacitance difference between C1 and C2, and a moment  $M_x$  about the X-axis is detected by means of the capacitance difference between C3 and C4.